

IN THE CLAIMS:

Please add new claims 32 and 33. After amendment, the claims will read as follows:

1. (original) A prosthesis to replace a cephalad portion of a left natural facet joint on a vertebral body and a cephalad portion of a right natural facet joint on the vertebral body, the prosthesis comprising

an integrated base member including left and right side regions and a mid-region joining the side regions without fixation of the mid-region to bone, to form the integrated base member,

a fixation area on at least one of the left and right side regions to accommodate fixation of the integrated base member to the vertebral body,

an artificial left facet joint structure on the left side region adapted and configured to replace a cephalad portion of the left natural facet joint, and

an artificial right facet joint structure on the right side region adapted and configured to replace a cephalad portion of the right natural facet joint.

2. (original) A prosthesis according to claim 1

wherein the fixation area is located superior to the artificial facet joint structure to accommodate fixation of the integrated base member to the vertebral body at or near a pedicle.

3. (original) A prosthesis according to claim 1

wherein the fixation area is located superior to the artificial facet joint structure to accommodate fixation of the integrated base member to a pedicle of the vertebral body.

4. (original) A prosthesis according to claim 1

further including an auxiliary fixation area on the mid-region to accommodate fixation of the integrated base member to the vertebral body at or near a spinous process.

5. (original) A prosthesis according to claim 1

further including an auxiliary fixation area on the mid-region to accommodate fixation of the integrated base member to a spinous process of the vertebral body.

6. (original) A prosthesis according to claim 1

wherein at least one of the left and right artificial facet joint structures includes means for replacing a cephalad portion of a respective one of the left and right natural facet

joints after removal of the cephalad portion of the respective natural facet joint from the vertebral body.

7. (original) A prosthesis according to claim 1

wherein the left and right artificial facet joint structures include means for replacing a cephalad portion of the left and right natural facet joints after removal of the cephalad portion of the left and right natural facet joints from the vertebral body.

8. (original) A prosthesis according to claim 1

further including a third artificial facet joint structure on one of the left and right side regions superior to the respective artificial left or right facet joint structure adapted and configured to replace a caudal portion of a natural facet joint formed by a vertebral body.

9. (original) A prosthesis according to claim 8

wherein the third artificial facet joint structure includes means for replacing a caudal portion of a natural facet joint after removal of the caudal portion of the natural facet joint from the vertebral body.

10. (original) A prosthesis according to claim 1

wherein at least one of the left and right artificial facet joint structures includes means for replacing a cephalad portion of at least one of the left and right natural facet joints after removal of at least one inferior articular process and at least a portion of a lamina from the vertebral body.

11. (original) A prosthesis according to claim 1

wherein the left and right artificial facet joint structures include means for replacing a cephalad portion of the left and right natural facet joints after removal of left and right inferior articular processes and at least a portion of a lamina from the vertebral body.

12. (original) A prosthesis according to claim 8

wherein the third artificial facet joint structure includes means for replacing a caudal portion of a natural facet joint after removal of at least a portion of a mamillary process, or an accessory process, or part of a transverse process, or part of a pedicle from the vertebral body.

13. (original) A method of replacing, on a vertebral body, a cephalad portion of a left natural facet joint and a cephalad portion of a right natural facet joint using the prosthesis as

defined in claim 1 to provide improved support for the spinal column, the method comprising the steps of

- (i) removing the cephalad portions of the left and right natural facet joints from the vertebral body, and
- (ii) after step (i), fixing the prosthesis as defined in claim 1 to the vertebral body to replace both removed cephalad portions of the first and second natural facet joints with the first and second artificial facet joint structures.

14. (original) A method according to claim 13
wherein the removing step includes removing left and right inferior articular processes and at least a portion of a lamina from the vertebral body.

15. (original) A prosthesis to replace a cephalad portion of a natural facet joint on a vertebral body comprising

- a base member,
- a fixation area on the base member to accommodate fixation of the base member to the vertebral body, and
- an artificial facet joint structure on the base member including means for replacing a cephalad portion of a natural facet joint after removal of at least a portion of an inferior articular processes and at least a portion of a lamina from the vertebral body.

16. (original) A prosthesis according to claim 15
wherein the fixation area is located superior to the artificial facet joint structure to accommodate fixation of the base member to the vertebral body at or near a pedicle.

17. (original) A prosthesis according to claim 15
wherein the fixation area is located superior to the artificial facet joint structure to accommodate fixation of the base member to a pedicle of the vertebral body.

18. (original) A prosthesis according to claim 15
further including an other artificial facet joint structure on the base member superior to the first defined artificial facet joint structure adapted and configured to replace a caudal portion of a natural facet joint on the vertebral body.

19. (original) A prosthesis according to claim 18

wherein the other artificial facet joint structure includes means for replacing a caudal portion of a natural facet joint after removal of at least a portion of the caudal portion of the natural facet joint from the vertebral body.

20. (original) A prosthesis according to claim 18

wherein the other artificial facet joint structure includes means for replacing a caudal portion of a natural facet joint after removal of at least a portion of a mamillary process, or an accessory process, or part of a transverse process, or part of a pedicle from the vertebral body.

21. (original) A method of replacing, on a vertebral body, a cephalad portion of a natural facet joint using the prosthesis as defined in claim 15 to provide improved support for the spinal column, the method comprising the steps of

(i) removing the cephalad portion of the natural facet joint from the vertebral body, including removal of an inferior articular process and at least a portion of a lamina from the vertebral body, and

(ii) after step (i), fixing the prosthesis as defined in claim 15 to the vertebral body to replace the removed cephalad portion of the natural facet joint with the artificial facet joint structure.

22. (original) A prosthesis to replace a caudal portion of a natural facet joint on a vertebral body comprising

a stem member including a fixation area to accommodate fixation of the stem member to the vertebral body at or near a pedicle, and

an artificial facet joint structure carried by the stem member adapted and configured to replace a caudal portion of a natural facet joint.

23. (original) A prosthesis according to claim 22

wherein the fixation area accommodates fixation of the stem member to the vertebral body without fixation of the stem member to a lamina of the vertebral body.

24. (original) A prosthesis to replace a caudal portion of a natural facet joint on a vertebral body comprising

a screw member including a fixation area to accommodate fixation of the screw member to the vertebral body at or near a pedicle, and

an artificial facet joint structure carried by the screw member adapted and configured to replace a caudal portion of a natural facet joint.

25. (original) A prosthesis according to claim 24

wherein the fixation area accommodates fixation of the screw member to the vertebral body without fixation of the screw member to a lamina of the vertebral body.

26. (original) A prosthesis according to claim 22 or 24

wherein the artificial facet joint structure includes means for replacing a caudal portion of a natural facet joint after removal of at least a portion of the caudal portion of the natural facet joint from the vertebral body.

27. (original) A prosthesis according to claim 22 or 24

wherein the artificial facet joint structure includes means for replacing a caudal portion of a natural facet joint after removal of at least a portion of a mamillary process, or an accessory process, or part of a transverse process, or part of a pedicle from the vertebral body.

28. (original) A method of replacing, on a vertebral body, a caudal portion of a natural facet joint using the prosthesis as defined in claim 22 or 24 to provide improved support for the spinal column, the method comprising the steps of

(i) removing the caudal portion of the natural facet joint from the vertebral body, and

(ii) after step (i), fixing the prosthesis as defined in claim 22 or 24 to the vertebral body to replace the removed caudal portion of the natural facet joint with the artificial facet joint structure.

29. (original) A method according to claim 25

wherein the removing step includes removing at least a portion of a mamillary process, or an accessory process, or part of a transverse process, or part of a pedicle from the vertebral body.

30. (original) A prosthesis system to replace a cephalad portion and a caudal portion of a natural facet joint on a vertebral body comprising

a first prosthesis as defined in claim 15 to replace a cephalad portion of the natural facet joint,

a second prosthesis as defined in claim 22 or 24 to replace a caudal portion of the natural facet joint, and

the artificial facet joint structure of the first prosthesis being adapted and configured to articulate with the artificial facet joint structure of the second prosthesis to replace the cephalad and caudal portions of the natural facet joint.

31. (original) A prosthesis according to claim 1

wherein the fixation area accommodates fixation of the integrated base member to the vertebral body without fixation of the integrated base member to a lamina of the vertebral body.

32. (new) A prosthesis for the replacement of a posterior element of a natural vertebra wherein the natural vertebra comprises a natural vertebral body, a pair of natural

- pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said prosthesis comprising:

a pair of prosthetic mounts;

a prosthetic lamina extending from said two prosthetic mounts;

a pair of prosthetic superior facets extending from said two prosthetic mounts and said prosthetic lamina; and

a pair of prosthetic inferior facets extending from said prosthetic lamina.

33. (new) A method for replacing a posterior element of a natural vertebra,

wherein the natural vertebra comprises a natural vertebral body, a pair of natural pedicles extending from the natural vertebral body, a natural lamina extending from the two natural pedicles, a pair of natural superior facets extending from the two natural pedicles and the natural lamina, a pair of natural inferior facets extending from the natural lamina, a natural spinous process extending from the natural lamina, and a pair of natural transverse processes extending from the two natural pedicles, said method comprising the steps of:

making a resection at the most dorsal aspect the two natural pedicles; and

attaching a prosthesis to the resected vertebra, said prosthesis comprising a pair of prosthetic mounts, a prosthetic lamina extending from said two prosthetic mounts, a pair of prosthetic superior facets extending from said two prosthetic mounts and said prosthetic lamina, and a pair of prosthetic inferior facets extending from said prosthetic lamina.